REMARKS

Applicants respectfully request the entry of the foregoing amendments.

Amended Claim 1 is directed to:

1. An aviation turbine oil lubricant composition exhibiting enhanced load-carrying capacity and oxidative/corrosion stability said lubricant composition comprising a major portion of:

a) a synthetic ester based stock which is the esterification product of an aliphatic polyol containing 4 to 15 carbon atoms and from 2 to 8 esterifiable hydroxyl groups reacted with a carboxylic acid containing from 4 to 12 carbon atoms;

and a minor portion of:

b) 3-(di-isobutoxy-thiophosphonylsulfanyl)-2-methyl-propionic acid (DITMPA); and

c) tolutriazole.

Claims 15 to 17 depend from Claim 8 and are directed to methods for enhancing the load-carrying capacity and the oxidative/corrosion stability of synthetic ester base stock aviation turbine oil lubricant comprising a synthetic ester based turbine oil stock which is the esterification product of technical pentaerythritol and a mixture of C_4 to C_{12} carboxylic acids by adding certain amounts of DITMPA and tolutriazole.

New Claims 18 to 20 are directed to aviation turbine oil lubricant compositions comprising (a) a synthetic ester based turbine oil stock which is the esterification product of technical pentaerythritol and a mixture of C_4 to C_{12} carboxylic acids, and certain amounts of (b) DITMPA and (c) tolutriazole.

Support for the new claims is found at page 3, line 21 to page 4, line 8 and at page 6 line 27 to page 7, line 22.

Claims 1, 4-6, 8-11 and 13 were rejected under 35 U.S.C.103(a) as being anticipated by Camenzind et al (US 5,922,657). This rejection was made final.

Applicants respectfully traverse this rejection.

Claim 1 has been amended to provide that the lubricant composition is an aviation turbine oil lubricant composition and that the yellow metal passivator is tolutriazole. Support is found at page 10, line 14.

Camenzind from column 2, line 53 to column 3, line 25 discloses a vast range of different types of different compounds which can be employed as a lubricant base stock. Synthetic ester-based lubricants are merely one example of a base stock which may be used.

Many of the lubricant base stocks disclosed in Camenzind would not be suitable as lubricant base stocks for an aviation turbine oil lubricant composition as they would not be able to withstand the high temperatures and pressures in aviation turbine engines and would oxidize or break down. Camenzind states at column 2, lines 64-65 that "The lubricants are especially oils and greases, based for example on a mineral oil. Oils are preferred." At column 3, lines 31-334, Camenzind indicates that the lubricant compositions are used in internal combustion engines, for example in motor vehicles fitted, for example, with engines of the Otto, Diesel, two-stroke, Wankel or orbital type. There is no indication that the Camenzind lubricant compositions would be useful as aviation turbine oils in jet turbine engines as is Applicants' claimed lubricant composition.

Nowhere in the disclosure of Camenzind is DITMPA specifically disclosed. In this regard, it should be noted that the specification in column 2, lines 13-23, states that "with particular preference" R_3 is hydrogen, i.e., the particularly preferred compounds of Camenzind do not include DITMPA nor is there any exemplification of a composition containing DITMPA in Camenzind et al.

Hence, the person skilled in the art would have to select an embodiment which is neither specifically disclosed nor considered preferable in order to arrive at the subject matter of Applicants' claimed invention.

Although tolutriazole is disclosed in Camenzind, it is merely one compound in a list containing over 30 different options. Furthermore, there is no specific exemplification of the use of tolutriazole in Camenzind and no recognition of the surprising corrosion reducing effect Applicants discovered, which is achieved by combining tolutriazole with DITMPA. The Camenzind patent fails to give any suggestion that the combination of DITMPA and tolutriazole would be expected to provide an enhanced effect in reducing copper corrosion.

It can be seen in Table 3, when comparing the Cu wt loss result at 425° F for Examples 2 and 3 in which DITMPA and tolutriazole (TT) are used and Examples 4, 5, and 6, in which a composition other than DITMPA is used with tolutriazole, that the use of the combination of DITMPA and tolutriazole provides an unexpected enhancement in

the reduction of copper loss. This can also be seen when comparing Examples 2 and 3 with Example 11 which has no DITMPA.

The Camenzind disclosure encompasses thousands of possible combinations of components, and nothing in the disclosure would point one to Applicant's particular combination of components comprising (a) a synthetic ester based stock which is the esterification product of an aliphatic polyol containing 4 to 15 carbon atoms and from 2 to 8 esterifiable hydroxyl groups reacted with a carboxylic acid containing from 4 to 12 carbon atoms, (b) DITMPA, and (c) tolutriazole.

A person skilled in the art would be faced with having to make three different selections from among thousands of possible combinations in order to arrive at the subject matter of Applicants' claimed invention. Given the necessity of such specific selections, it is respectfully submitted that the present claims are not obvious and are patentable over the disclosure of Camenzind.

Furthermore, it is clear from the results, for example, in Table 3 on page 11 of the specification that the compositions of the present invention provide surprisingly good results, which would not be expected from the disclosures of Camenzind.

More specifically, Examples 2, 3, 8, 9, and 10 demonstrate that where a combination of DITMPA and tolutriazole or benzotriazole is added to a lubricating composition, the amount of copper loss is significantly reduced compared to other compositions where DITMPA is not present, or alternatively is replaced by another compound, for example DMTD or SFAE, which are both known alternatives used in the art. Applicants submit that this is a showing of unexpected results which fully supports the patentability of Claims 1-20.

In addition, reference is made to Table 1 on page 9 of the specification, where it can be seen that the compositions of Examples 2 and 3, which contain DITMPA and tolutriazole, demonstrate the highest load-carrying capacity when compared with Examples 1 and 4 to 6 (please note that Example 7 is a military specification, and therefore its composition is unknown).

Further, reference is made to Table 2 on page 10, where it can be seen that the compositions of Examples 2 and 3, which contain DITMPA and tolutriazole, are the only ones which demonstrate improved performance when compared to the composition of Example 1.

Camenzind does not specifically disclose the use of DITMPA, and therefore cannot be considered to teach or suggest the benefits of combining DITMPA with

tolutriazole with the surprising result of significantly improved corrosion/oxidative stability.

In this regard, the disclosure of Camenzind is concerned with use in "internal combustion engines, for example in motor vehicles fitted with, for example engines of the Otto, diesel, two-stroke Wankel or orbital type". Hence the disclosure of Camenzind is concentrated solely on FCG transmission tests and does not disclose any results for oxidation/corrosion stability, which properties are considered highly important in the preparation of turbine oils. Accordingly, nothing in the disclosure of Camenzind teaches, nor suggests, the benefits attained in the present invention as disclosed in Tables 2 and 3, nor the results attained in the Hot Liquid Process simulator test, US Navy Vapor Phase Coking test or Cyclic Coker Mister test.

It is respectfully submitted that Claims 1, 4-6, 8-11 and 13 as well as new claims 15 to 20, are not obvious in view of Camenzind and are patentable thereover.

Claims 3 and 14 were rejected under 35 U.S.C.103(a) as being unpatentable over Camenzind et al (US 5,922,657) in view of Ashcraft, Jr. et al (US 5, 503,761). This rejection was made final.

Applicants' respectfully traverse this rejection.

The Camenzind patent fails to give any suggestion that the combination of DITMPA and tolutriazole would be expected to provide an enhanced effect in reducing copper corrosion, and Camenzind does not disclose the use of technical pentaerythritol as a lubricant base stock.

Technical pentaerythritol is neither disclosed nor suggested in Camenzind. Given the surprisingly good and unexpected results obtained with the compositions of the present invention, as discussed above, and the necessity for making three choices from the lists of compositions in Camenzind, which encompass thousands of possible combinations, to arrive at Applicants' claimed subject matter, it is submitted that it would not be obvious to one skilled in the art to choose technical pentaerythritol, which is neither disclosed nor suggested in Camenzind, to arrive at the subject matter of Claims 3 and 14. Therefore, it is submitted that Claims 3 and 14 as well as new Claims 15-20 are patentable over Camenzind alone or in combination with Ashcraft.

It is clear that a person skilled in the art, even with the knowledge of Camenzind alone or in combination with Ashcraft, would not arrive at the specific compositions of the present invention and would not be led to expect the surprising benefits seen with regard to oxidative/corrosion stability, for example, reduced copper loss, and stability

under extreme conditions from the combination of DITMPA and tolutriazole in a technical pentaerythritol synthetic ester based turbine oil stock.

For the reasons stated above, it is submitted that one skilled in the art would not be led to the specific selection of components of Applicants' claimed invention by the disclosure of Camenzind alone or in combination with Ashcraft and that the claimed invention is not obvious over Camenzind alone or in combination with Ashcraft.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance.

Reconsideration, allowance of all claims, and passage of the application to issue are respectfully requested.

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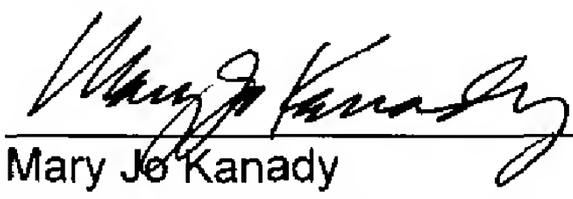
Respectfully submitted,



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